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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/551,124

09/26/2005

Toru Inoue

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EXAMINER

CHANG, VICTOR S

ART UNIT

PAPER NUMBER

1794

MAIL DATE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/551,124	<b>Applicant(s)</b> INOUE ET AL.	
	<b>Examiner</b> VICTOR S. CHANG	<b>Art Unit</b> 1794	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 December 2009 and 24 December 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,6,14-18,20 and 28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,6,14-18,20 and 28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Introduction***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' amendments and remarks filed on 12/11/2009 and 12/24/2009 have been entered. Claims 1 and 6 have been amended. Claims 1, 6, 14-18, 20 and 28 are active.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Rejections not maintained are withdrawn.

### ***Rejections based on Prior Art***

4. Claims 1, 6, 14-18, 20 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lucca et al. [US 4966799].

Lucca's invention relates to a vehicle noise reducing element (sound insulator) [abstract]. Fig. 2 illustrates an embodiment of the element containing a padding layer 21, a supporting layer 23, and a heat-sealable adhesive layer 27 between the two layers. The padding layer is sound absorbing (sound absorption layer) and consists of a thermoformed fiber mat bonded with a thermoplastic [col. 2, ll. 67-68]. The thickness of the padding layer depends on the required sound absorption [col. 3, ll. 40-41]. Useful fiber mat for the sound-absorbing layer 21 has a low

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density of 50-150 kg/m<sup>3</sup> (0.05-0.15 g/cm<sup>3</sup>) [col. 3, ll. 49-55]. The supporting layer consists of a solid thermo plastic sheet material (air impermeable layer) [col. 2, ll. 59 through col. 3, ll. 6].

The thickness of the element can be adapted to specific use requirements. When the noise reducing element is used as a sound insulator and needs to have little mechanical stability but good sound absorption, the element should possess a relatively thin supporting layer (air impermeable layer) and a comparatively thick padding layer (sound absorption layer). In contrast, when the noise reducing element is used as structural element (i.e., the sound insulator providing structural strength as well), the supporting layer (air impermeable layer) is 1-10 mm thick and, and the padding layer (sound absorption layer) is 5-50 mm thick [col. 3, ll. 29-44]. A thin heat-sealable film is used as an adhesive layer between the padding layer and the supporting layer [col. 3, ll. 5-6].

For claims 1, 14, 15, 17, 18 and 28, Lucca is silent about: 1) the thickness range and the area weight of the supporting layer (air impermeable layer) when little mechanical stability but good sound absorption is required, 2) the adhesion peel strength between the sound-absorbing layer 21 and the solid supporting layer 23. However, regarding 1), since Lucca teaches that the thickness of the element can be adapted to specific use requirements, and for element which is used for a good sound absorption and needs to have little mechanical stability, the supporting layer should be thin and a comparatively thick padding layer as set forth above, a workable thin thickness of the supporting layer and a resultant low area weight are deemed to be obvious routine optimizations to one of ordinary skill in the art, motivated by the desire to obtain a sound insulator adapted mainly for good required sound absorption properties. It should be noted that the workable thin thickness of the supporting layer would be reasonably expected to be less than

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the thickness range of 1-10 mm for structural embodiments. Regarding 2), since Lucca teaches generally the same structure and composition, and for the same use as the claimed invention, a workable adhesion peel strength is deemed to be an obvious routine optimization to one of ordinary skill in the art, motivated by the desire to obtain the same required properties for the same end use as the claimed invention. Regarding the % adhesion area between the sound-absorbing layer 21 and the solid supporting layer 23, it is read upon by Lucca's thin heat-sealable adhesive film layer 27, and Figs. 1-3 show that all the layers are coextensive, i.e., 100% adhesion area. Regarding the "resonance" property of the air impermeable layer, absence of any distinct structure/composition feature, it is deemed to be an inherent functional property to the same structure/composition for the same end use as the claimed invention. Finally, regarding the orientation of the sound insulator in use, since they do not serve to distinguish structure of the claimed invention over the prior art, they have not been given any patentable weight. *In re Pearson*, 494 F.2d 1399, 1403, 181 USPQ 641, 644 (CCPA 1974). Further, even if the orientation is considered, since Fig. 3 illustrates that the noise or sound absorbing padding layer surrounds and faces the engine 30, the air impermeable support layer 34 (resonance layer) is necessarily adapted to face vehicle interior. Furthermore, the orientations illustrated in Figs. 2 and 3 suggest that the sound absorbing padding layer can be placed either facing or away from the source of the noise or sound, i.e., either orientation is workable.

For claims 6, 16 and 20, since Lucca teaches that the noise reducing element has sufficient compressive strength [col. 1, ll. 63-66], a workable initial compression repulsive force is deemed to be an obvious routine optimization to one of ordinary skill in the art, motivated by the desire to obtain the required strength for the same end use as the claimed invention.

***Response to Arguments***

5. Applicants argue at Remarks at page 8:

“The ultra-light sound insulator of the present invention does not need to be dimensionally stable, does not need to itself to form a structural element, and can have its thickness varied to adopt to the vehicle body panel to which it is applied. In contrast, because of the dimensionally stable supporting layer In Lucca et al., it is intended to form a structural element that can be used without a holding frame or without a supporting surface.”

However, Lucca’s invention encompasses an embodiment which does not need to itself form a structural element, as set forth above. Applicants’ argument ignores the Lucca’s embodiment relied upon in the Office action, as set forth above.

Applicants argue at pages 8-9:

“One difference in structure between the ultra-light sound insulator of the present invention and the noise-reducing structural element of Lucca et al. is that the sound absorption layer in the ultra-light sound insulator of the present invention has a thickness that varies from one region to another in a range of 1 to 50 mm. On the other hand, Lucca teaches that an element which is to be used as a sound screen and needs to have little mechanical stability but good sound absorption should possess a relatively thin supporting layer and a comparatively thick padding layer. In short, the sound screen of Lucca should have a comparatively thick padding layer. That is, in the sound screen of Lucca, high sound absorption rate cannot be assured when the thickness of the sound absorption layer is varied or reduced.”

However, the density and thickness ranges of Lucca’s padding layer (sound absorption layer) read on the ranges of the claimed invention. It is inconceivable that how the term “varied or reduced” excludes the ranges of Lucca’s vehicle noise reducing element. Further, absent any evidentiary support, applicants’ argument that that the term “varied or reduced” thickness would render Lucca's sound absorption rate not assured is baseless.

Applicants argue at page 9:

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“Varying the thickness of the sound absorption layer is not disclosed in Lucca. It rather contradicts the requirement of a comparatively thick padding layer. Accordingly, the advantageous effect of the present invention that sound absorption is improved as a whole in a wider frequency domain by varying the thickness of the sound absorption layer is not achieved by the sound screen of Lucca.”

However, claim 1 merely recites “... varies from one region to another in a range of ...”, the term varies is interpreted as at least anticipated by Lucca on microscopically acceptable thickness variation, which is reasonably expected of a molded padding material. Further, even it is considered, Lucca at least illustrates thickness variation around bending area in Fig. 3, i.e., thickness varies with location and accommodates overall shape variation.

Applicants argue at page 10:

“relatively thin supporting layer of Lucca should still have rather high rigidity as long as it is called "supporting layer ... rigidity of the supporting layer of Lucca prohibits resonance to arise independently in a narrow area, and thus prohibits the improvement in the sound absorption when the thickness of the padding layer is varied with location.”

However, applicants are reminded that Lucca is not limited to structural applications as set forth above. Applicants’ argument directed to embodiment not relied upon is misplaced. Further, absence of any distinct structure/composition feature in any of the layers of the claimed invention, applicants’ argument in vacuum that Lucca necessarily has a rigidity which prohibits resonance is baseless.

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VICTOR S. CHANG whose telephone number is (571)272-1474. The examiner can normally be reached on 6:00 am - 4:00 pm, Tuesday - Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Victor S Chang/  
Primary Examiner, Art Unit 1794